



CONTRIBUTIONS TO OTOLOGY.

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THE EARLY TREATMENT OF EAR DISEASES.*

BY D. B. ST. J. ROOSA, M. D., NEW YORK.

I HAD intended to come to the meeting of the Society somewhat prepared to discuss this question of the early treatment of acute aural disease; but after looking over my statistics of those cases of chronic non-suppurative affections of the middle ear that had been under my observation and care for some seven to ten years, with a view of showing the hopelessness of attempting to completely arrest the progress of these cases, I found that more time was required for the analysis of this part of the subject than I had then at my disposal. My attention was first markedly turned to the fact that otologists have as yet paid undue attention to the treatment of chronic somewhat to the neglect of acute aural disease by a very friendly notice of my book on the ear, which said, on coming to the chapters on chronic non-suppurative affections of the middle ear, that these formed the great feature of the treatise. To my regret, on looking the matter over, I found that too much energy, as I now think, had been spent in the chapters on intractable affections, somewhat, perhaps, to the neglect of those treating

*The remarks of Dr. Roosa refer to a paper by Dr. C. R. Agnew, on "Five hundred consecutive cases of ear-disease, with remarks upon the early treatment of ear-affections," a synopsis of which the author read at the meeting. Unfortunately this paper could not be elaborated, as the author desired, on account of the press of other engagements, and consequently does not appear in this number. — Ed.

of the curable diseases ; and this you will find to be the case, I think, in nearly all, if not all the books on the ear that have yet been published. My experience seems to teach — in spite of all the therapeutic means that have been advised, including such operative interferences as Weber Liel's division of the tensor tympani, of which so much was hoped — that these chronic cases should be considered as analogous to cases of chronic choroiditis, of commencing atrophy of the optic nerve, and of phthisis pulmonalis. I will not say that none of these diseases are ever cured, but we are certainly very well satisfied if we arrest their progress, and we are not always able to do even this. Our mission is now at least to teach the profession and the public, that *acute* cases of aural disease are peculiarly susceptible to treatment, and that our hope for the prevention of chronic diseases lies in the early treatment of the very earliest stages of affections of the ear.

Such cases as that once mentioned to me by my distinguished friend Dr. Agnew are unfortunately too common, although not often as judiciously dealt with by the specialist as was his. A young man who had passed successfully through an acute general disease, having had at the same time an acute suppuration of the ears, which had resulted in loss of both drum membranes, and ossicula with a granular state of the tympanic mucous membrane, and great impairment of hearing, was finally sent to Dr. Agnew for treatment, not one honest effort having been previously made to check a process that had made such fearful ravages. The doctor very properly declined to take the case at this stage and bear the odium of its result, advising the doctor who had thus neglected the only proper time for the treatment of such a case to finish what he had so successfully carried to such an advanced stage.

Through the courtesy of some of the general practitioners of New York, I am now kept busy on the afternoons of the catarrhal and exanthematous seasons in seeing cases of aural diseases at a time when they are in their very incipency. Every one of us who has not a similar experience, must, I

think, expect it, and instruct his professional brethren that those, and not the chronic ones, are the ones he especially desires to see. If we can but get the control of these cases, and get the profession rid of the idea that we are office practitioners only, the next generation will see a much less proportion of chronic cases than now falls to our lot to treat.

As to the details of treatment of which Dr. Agnew and Dr. Pomeroy have spoken, I quite agree with the former in his advocacy of leeches and paracentesis, and while I acknowledge that I have learned very much from Dr. Pomeroy in the use of nitrate of silver, I do not suppose that he meant to have us conclude that a case of pain in the ear, having its origin in the tympanic cavity or Eustachian tube, can be alleviated at once by anything short of leeches. My experience has not been quite the same as Dr. Agnew's as to the use of morphine or the other preparations of opium. So far from being able to mask the symptoms with these agents, I have never found that any doses of opium, unaccompanied by leeches or the warm douche or paracentesis, would quiet the pain, so that I place no reliance upon opium alone; and after the leeching it will not always be needed; but experiences differ, and I will not pretend to say that there are no cases of aural disease which anodynes will not mask.

A CASE OF PURULENT INFECTION (PLEURO-PNEUMONIA) RESULTING FROM SUPPURATION IN THE MIDDLE EAR, PRESENTED WITH A SPECIMEN.

BY D. B. ST. JOHN ROOSA, M. D.

THE following case does not differ materially from many that make up the literature of the transference of purulent processes from the ear to other organs of the body, to which Lebert called the attention of the profession; but it has a certain measure of completeness, in that it was observed from

an early period in its history down to the *post mortem*, and is illustrated by a portion of the diseased temporal bone. It is therefore, perhaps, worthy the attention of the Society.

Wm. H., æt. 25, April 8, 1873. The patient stated that he has never heard well from the right ear, but he never had any discharge from the ear until four years before, when, after some unusual exposure to a draught of air while working on a ship in dock, he was seized with a severe pain in the ear followed by discharge of pus. Since this time he has had a discharge of pus at times from the ear, and has heard very badly on that side.

The H. D. was R $\frac{0}{40}$ $\frac{40}{40}$, pharynx tolerably healthy. The right drum-head seemed to be entirely gone, and there was considerable inspissated pus lying in the tympanic cavity. Air did not readily enter the Eustachian tubes. These notes were made at the only time I saw the patient, until I was summoned to him in consultation with Drs. Cameron and McKay of the city, more than two years after, when he was apparently *in articulo mortis*.

Drs. Cameron and McKay have very kindly furnished me with notes of the case from the time they were consulted up to the date just referred to. From these notes I now quote:—

"April 29, 1875. Dr. Cameron was called to see W. H., and found him complaining of intense pain in the right ear and the right side of the head. He said that he had been suffering for two weeks from this pain in the head and ear, with profuse purulent otorrhœa, and that this was accompanied by loss of appetite and sleep, with a sense of general prostration. There was no increase in the temperature of the body. These symptoms continued until May 4, when he was seen by Dr. McKay. The temperature was then $102\frac{1}{2}^{\circ}$. The patient stated that there had been no cessation in the intense pain in the ear and head, and that at times his sufferings had been most agonizing. There was acute pharyngitis, and a very slight amount of tenderness was experienced on pressure beneath the right external meatus and in front of the

tragus on the same side. There was no tenderness over the mastoid, nor was any detected there during the subsequent course of the disease. The right ear was exquisitely sensitive to any contact, but there was a very slight discharge of pus from it. The left meatus was also somewhat injected, as also the drum-head. The watch could not be heard even when pressed upon either ear. The tuning-fork, when placed upon the forehead, was heard equally well in both ears.

"The use of leeches relieved the severe pain, but the temperature increased to 103° , and the patient complained of disagreeable feelings in his head. He was at times very irritable, and slightly delirious. For several days he remained in about the same condition. The temperature ranged from 102° to 103.5° , while the pulse varied from 70 to 85. On the 8th of May he had a chill. On the 9th, Dr. Cameron found that the patient was suffering from pleurisy of the left side. On the evening of the 9th another chill occurred. On the 10th the patient was very restless, and suffered greatly from pains in his head and chest. On the 11th, pleurisy of the right lung was also detected, with pneumonia affecting the lower lobes of both lungs. The discharge from the ear became more abundant on the 13th, while there was copious expectoration. The head symptoms seemed to be greatly ameliorated, the mind was clear, and the general condition became more comfortable. On the night of the 18th, however, chilly sensations were again experienced, and they were followed by intense pain over the region of the lateral sinus. This pain involved the right ear, and extended down the back of the neck. There was tenderness on pressure at these points. On the 21st, after the application of leeches, the pain and tenderness were somewhat lessened; chilly sensations were experienced at various times during the past two or three days, and the temperature varied from 102° to 104° , with a slow pulse. For the first time since his illness, the tuning-fork was heard better on the right side. On the 22d, the patient had

a slow, feeble, and intermittent pulse. Temperature, 104.3°, surface of the body alternately dry and moist. On the 23d, the patient complained of the right eye, that it was painful, and it soon protruded from the orbit. There was also observed a swelling upon the left side of the neck, extending down from and behind the angle of the face. On the 24th, the left eye also protruded."

On the afternoon of that day I saw the patient, and found the patient unconscious, breathing stertorously. There was a free discharge from the right ear, and the patient seemed to be blind. On the 26th, at 8 A. M., the patient died.

Autopsy, 8 hours after death. Present, Drs. Cameron, McKay, Ely, and Roosa. Marked ex-ophthalmos on both sides. Brain: General congestion of the brain substance, and very marked fulness of the vessels on the surface; no softening; no purulent collection; thrombosis of right internal jugular; pus in the right lateral sinus; excess of serous fluid in the ventricles. Thorax: There was suppurative pleuritis of the right lung; the entire surface of the lung was heavily coated with pus; there was serous and-purulent effusion into the pleural sac; odor, extremely fetid.

The other organs were not examined. The temporal bone was removed in the usual manner,—the section passed through the apex of the bone in such a manner as to expose the cochlea. There was no trace of the membrana tympani nor of the ossicles. The bony wall of the lateral sinus was in a carious condition. The upper surface of the petrous bone was discolored, of a bluish tint. The cochlea and semi-circular canals not examined.

I was not aware until I had the notes of the case that the left ear was so much involved during the illness as the notes show it to have been. Hence there was no examination of it after death.

EXPERIMENTS CONCERNING THE EFFECTS OF QUININE UPON THE EAR.

BY D. B. ST. JOHN ROOSA, M. D.

So far as I know, although a great deal has been said in a general way, there has been very little exact experimentation or observation upon this subject. A case in which the administration of quinine was always followed by a considerable aggravation of the symptoms of otitis media has been recorded by myself.*

Dr. Hammond has also published some experiments on this subject in the *Psychological and Medico-Legal Journal*, October, 1874, p. 232, in a paper in which he gives the literature of the subject, and particularly the experience of M. Mèlier (*Expériences et Observations sur les Propriétés Toxiques du Sulfate de Quinine. Mémoires de l'Académie Royale de Médecine, etc. p. 722.*) Mèlier is very decided as to quinine causing deafness, as are other writers; but observations as to the immediate effect of the drug upon the membrana tympani or other parts of the ear do not appear except in the account of Dr. Hammond's own case.

Having myself administered the quinine to Dr. Hammond on that occasion, and noted the results which were published, I was led to repeat the experiment in some other cases. The results of these experiments I now bring to the attention of the Society; and as the report had no very wide circulation, and may have escaped the attention of the Society, I may first quote the experiment upon Dr. Hammond, which was made on the evening of May 7, 1874. The optic papillæ and the membranæ tympanorum were the parts examined, as well as the ocular conjunctivæ and auricles. "The vision was normal, $\frac{20}{20}$. Refraction, emmetropic: pulse, 90; ocular conjunctivæ, white, decidedly free from hyperæmia; palpebræ, congested at outer and inner canthus.

* Treatise on the Ear.

There was no tinnitus aurium. Membranæ tympanorum were entirely free from evidence of blood-vessels. (I will omit the details of the examination of the optic papillæ, since we are concerned only with the effect of quinine upon the auditory apparatus.)

Dr. Hammond took gr. x. of sulphate of quinine at 8.30 P. M. At 9 P. M. the ocular conjunctivæ were congested at the outer and inner canthus; palpebræ conjunctivæ were markedly congested over the whole surface. There was no change in appearance of the drum-heads.

"10 P. M. Head feels full; left ear rings; auricles burn: face is decidedly flushed; auricles are red, especially the lobe of right, where there is a localized congestion, so marked as to resemble an ecchymosis. There is now a vessel along each malleus. The optic papillæ are pinkish from apparent enlargement of lateral vessels.

"10½ P. M. Right drum-head is very much injected along the handle of the malleus and the upper margin; left is less red, but still shows vascular injection. Both papillæ are pink, left more so than right; face flushed, eyes suffused, ocular conjunctivæ decidedly congested, slight headache, tinnitus in both ears."

"11 P. M. The redness of the auricles is diminishing, especially the circumscribed spot on the lobe of the left one; the face still flushed; tinnitus continues; no headache; subject feels exhilarated; drum-heads still injected along the malleus. . . . Tinnitus still continues; vision normal."

It should be said that Dr. Hammond, the subject of these experiments, is a very large and well-developed man, and that he smoked a mild cigar during the evening.

On the 28th May, 1875, I repeated the experiment upon Dr. E. T. E., æt. 24, a man of about five feet six inches in height, well developed, in good health and vigor. He stated that he never had had otitis. The hearing distance is $\frac{40}{40}$ on each side; refraction, emmetropic. He has no tinnitus aurium. The drum-heads are free from vessels, and normal in appearance; optic papillæ normal. At 11.05

A. M. Dr. E. takes gr. x of sulphate of quinine. At 11.35 there is a very fine vessel along the right malleus; no change in the left. At 12.30 there is some redness at the periphery of the left drum-head, but the vessel on the right has disappeared. At 1 P. M. the redness has disappeared from both sides. No change is observed in the optic papillæ. There is no tinnitus, and no sense of exhilaration. No tobacco or other stimulant was used during the time of observation.

June 23, 1875.—Dr. C., æt. 25, about five feet nine inches in height, rather spare. Refraction myopic, $\frac{1}{4}\frac{1}{2}$ v. = $\frac{2}{2}\frac{0}{0}$. Drum-heads absolutely free from congestion. No vessel on or along malleus. Optic papillæ are both flushed.

At 10.16 A. M. takes 15 gr. of sulphate of quinine. 11 A. M., a vessel is seen along malleus of right membrana tympani; and left membrana tympani presents no change. There is slight vertigo. 11.30. There is a sense of heat and tingling over the whole surface of the body. Sense of fulness in ears and head. The handles of both mallei are injected. The hands are tremulous, and the subject gives general evidence of nervous excitement. There are sounds of a high note in the ears. The ears feel warm. At 12.30 the injection of the malleus is disappearing, as are the vertigo and tremor. At 12.50 the mallei are still injected. Motions of the jaw cause peculiar and unpleasant sense of vibration in the ears.

Although these experiments are but three in number, they are sufficient, I think, to justify the view I expressed at the time of publishing a paper upon the "Diseases of the Internal Ear," "American Journal of the Medical Sciences," October, 1874,—that the effects of quinine upon the ear were due to congestion. That view was contested at the time of reading the paper* by Prof. Jacobi, on the ground that some observations that had been made in Germany, as well as clinical experience, seemed to show that anæmia, and

* N. Y. Society of Neurology and Electrology.

not congestion, was one of the effects of the use of quinine; that is to say, it was claimed that contraction and not dilatation of the vessels was produced by the drug. Dr. Hammond's experiments upon animals, published in the paper from which I have quoted, and what is much more conclusive than even experiments upon animals, large clinical experience, some of which is given us by such observers as the late Von Graefe, confirm the view deduced from my observations, — that the tinnitus aurium following the use of quinine is the result of overfilled blood-vessels, and is not the anæmia of blood-vessels not containing the normal quality or quantity of fluid.

It should also be stated that I have experimented upon two other physicians, giving each 10 gr. of quinine at a dose. I have no notes of these cases, but I may say that in one case congestion of the drum-heads and of the optic papillæ followed, with tinnitus aurium, while in the other *absolutely no effect was produced*. The former subject was a full-blooded man, who had suffered from congestion of the cerebral meningis. The gentleman upon whom the effect was produced had been in the habit of taking quinine, and was rather anæmic.

I am led from the discussion which followed this paper, to state that my belief is that the tinnitus aurium and impairment of hearing following the use of quinine, depend upon congestion of the ultimate fibres of the auditory nerve in the cochlea, and that the redness of the drum-heads is merely an index of the former condition. The peripheric parts of the ear being, however, the only parts open to ocular observation, we must as yet be content with an hypothesis as to the cause of the symptoms of disturbances in the internal ear.





